

CLAIMS

1. A near-field light generating method for forming a fine
5 light spot at a portion adjacent to a fine opening having a size
of not more than a wavelength of light on a light outgoing side
of the fine opening by irradiating the fine opening with the
light, said method comprising:
forming a light spot having a length and a width which are
10 substantially equal to each other by the fine opening, the fine
opening having a rectangular shape having a length and a width
which are different from each other.
2. A method according to Claim 1, wherein the length and the
15 width of the light spot are determined by the width of the
rectangular opening.
3. A method according to Claim 1, wherein the fine opening
has a length/width ratio of 1.1 - 2.
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4. A method according to Claim 1, wherein the fine opening
is provided in a plurality of fine openings including the
rectangular opening and a slit-like opening.
- 25 5. A near-field exposure mask, comprising:
a mask base material,
a light blocking layer disposed on the mask base material,

and

a fine opening having a size of not more than a wavelength of light used for exposure,

wherein the fine opening comprises a rectangular opening
5 having a length and a width which are different from each other,
the rectangular opening having a length/width ratio which permits
transfer of a pattern having a length and a width which are
substantially equal to each other.

10 6. A mask according to Claim 5, wherein the fine opening has
a length/width ratio of 1.1 - 2.

7. A mask according to Claim 5, wherein the fine opening is
provided in a plurality of fine openings including the
15 rectangular opening and a slit-like opening.

8. A near-field exposure method, comprising:
providing a near-field exposure mask according to Claim 5,
and
20 exposure an exposure object to light by using the
near-field exposure mask.

9. A near-field exposure apparatus for exposing an exposure
object to light, comprising:
25 a near-field exposure mask according to Claim 5, and
a light source to be exposed to light.

10. A near-field optical head, comprising:

means for generating near-field light, provided with a rectangular fine opening having a size of not more than a wavelength of light or a combination of the rectangular fine opening and a slit-like opening,

wherein a light spot having a length and a width which are substantially equal to each other by the rectangular fine opening, is formed at a portion adjacent to an opening portion on a light outgoing side of the rectangular fine opening.

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11. A head according to Claim 10, wherein the fine opening has a length/width ratio of 1.1 - 2.

12. A near-field optical microscope for effecting surface observation of a sample, comprising:

a near-field optical head according to Claim 10.

13. A recording and reproducing apparatus for effecting recording and reproduction with respect to a recording medium, comprising:

a near-field optical head according to Claim 10.

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